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FORM PTO-1390
REV. 5-93

US DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEYS DOCKET NUMBER: P-00,0001

U.S.APPLICATION NO. (if known, see 37 CFR 1.5): 09/485082

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/DE99/01598	31 May 1999	3 June 1998

TITLE OF INVENTION: "METHOD FOR MANUFACTURING AN ADHESION LAYER FOR A HEAT INSULATION LAYER"

APPLICANT(S) FOR DO/EO/US: Gerhard Wydra, Martin Thoma and Horst Pilhoefer

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay.
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. ☒ A copy of International Application as filed (35 U.S.C. 371(c)(2))
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2).

7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. §371(c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.

8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98; **(PTO 1449, Prior Art, Search Report)**.

12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.

13. ☒ A FIRST preliminary amendment.
    ☐ A SECOND or SUBSEQUENT preliminary amendment.

14. ☐ A substitute specification.

15. ☐ A change of power of attorney and/or address letter.

16. ☒ Other items or information:
    a. ☒ Submission of Drawings - 1 sheet
    b. ☒ EXPRESS MAIL #EL408260585US dated February 3, 2000

U.S.APPLICATION NO. (if known, see 37 C.F.R. 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/485082	PCT/DE99/01598	P-00,0001

17. ☒ The following fees are submitted:

	CALCULATIONS	PTO USE ONLY
BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):		
Search Report has been prepared by the EPO or JPO $840.00		
International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) ... $670.00		
No international preliminary examination fee paid to USPTO (37 C.F.R. 1.482) but international search fee paid to USPTO (37 C.F.R. 1.445(a)(2) $760.00		
Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2) paid to USPTO $970.00		
International preliminary examination fee paid to USPTO (37 C.F.R. 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) ..... $ 96.00		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 840.00	
Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).	$	

Claims	Number Filed		Number Extra	Rate		
Total Claims	19	- 20 =	0	X $18.00	$	
Independent Claims	1	- 3 =	0	X $ 78.00	$	
Multiple Dependent Claims				$260.00 +	$	
TOTAL OF ABOVE CALCULATIONS =					$ 840.00	
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 C.F.R. 1.9, 1.27, 1.28)					$	
SUBTOTAL =					$ 840.00	
Processing fee of $130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(f)). +					$	
TOTAL NATIONAL FEE =					$ 840.00	
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). $40.00 per property +						
TOTAL FEES ENCLOSED =					$ 840.00	
					Amount to be refunded	$
					charged	$

a. ☒ A check in the amount of $840.00 to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **08-2290**. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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James D. Hobart
NAME

24,149
Registration Number

**IN THE UNITED STATES ELECTED OFFICE OF
THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY - CHAPTER I**

PRELIMINARY AMENDMENT

APPLICANTS: Gerhard Wydra, Martin Thoma and Horst Pilhoefer

ATTORNEY
DOCKET NO.: P-00,0001

SERIAL NO.: EXAMINER:

FILING DATE: ART UNIT:

INTERNATIONAL APPLICATION NO.: PCT/DE99/01598

INTERNATIONAL FILING DATE: 31 May 1999

INVENTION: "METHOD FOR MANUFACTURING AN ADHESION LAYER FOR A HEAT INSULATION LAYER"

BOX PCT
Assistant Commissioner for Patents
Washington, D.C. 20231

S I R:

Please amend the above-identified International Application before entry into the National Stage before the U.S. Patent and Trademark Office under 35 USC 371 as follows:

IN THE SPECIFICATION:

Page 1, line 1, before the title, insert the following heading:

--TITLE--;

after the title, insert the following heading:

--BACKGROUND OF THE INVENTION--;

line 10, change "the adhesion layers given" to read --with--;

line 11, change "blades" to read --blades, the adhesion layers--;
line 22, delete "comprised in"; and
line 29, delete "comprised therein".

Page 2, line 5, change the line to read --turbine, which parts are exposed to hot gases, can be protected in that Ni powder, which is provided with a bonding agent,--;
line 6, delete "agent";
line 8, after "heat-treated." insert the following heading:
--SUMMARY OF THE INVENTION--;
line 18, after "alitizing" insert --or calorizing--; and
line 21, delete "comprised therein".

Page 3, line 5, change "Hf or Ce can also be employed instead of Y." to read --instead of Y, Hf or Ce can also be employed.--.

Page 4, line 2, before "outer" insert --an--;
line 4, change "a drawing" to read --the drawings.--;
line 5, replace this line with the following heading:
--BRIEF DESCRIPTION OF THE DRAWINGS--;
line 6, after "1" insert --is a photomicrograph of--;
line 7, after "2" insert --is a photomicrograph of--;
same line, after "alitizing." insert the following heading:
--DESCRIPTION OF THE PREFERRED EMBODIMENT--; and
line 18, after "formation of" insert --the--.

Page 5, line 16, before "adhesion" insert --an--.

Page 6, line 1, change "Patent Claims" to read --WE CLAIM:--.

IN THE CLAIMS:

Claim 1, line 2, change "characterized by" to read --the method comprising--.

Claim 2, line 1, change "characterized in that" to read --wherein--.

Claim 3, line 1, change "1 or 2, characterized in that" to read --2, wherein--.

Please cancel claims 4-7, without prejudice, and substitute the following claims:

--10. A method according to claim 2, wherein the step of applying is selected from a group consisting of spraying, brushing and immersing.--

--11. A method according to claim 2, wherein the component part is composed of an alloy selected from the group consisting of nickel-based alloys and cobalt-based alloys.--

--12. A method according to claim 2, wherein the drying is implemented for a period of 0.5 to 4 hours.--

--13. A method according to claim 2, which includes, prior to the step of alitizing, heat treating the slip layer in argon at a temperature of between 750°C to 1200°C.--

--14. A method according to claim 13, wherein the step of heat treating is for 1 to 6 hours.--

--15. A method according to claim 2, which includes, prior to the step of alitizing, heat treating the slip layer in a vacuum at a temperature range of 750°C to 1200°C.--

Claim 8, line 1, change "7, characterized in that" to read --15, wherein--.

Please cancel claim 9, without prejudice, and substitute the following claims:

--16. A method according to claim 2, wherein the step of alitizing is implemented at a temperature between 800°C and 1200°C for a duration of 1 to 12 hours.--

--17. A method according to claim 1, wherein the powder is present with a grain size distribution of 5μm through 120μm.--

--18. A method according to claim 1, wherein the step of applying is selected from a group consisting of spraying, brushing and immersing.--

--19. A method according to claim 1, wherein the component part is composed of an alloy selected from a group consisting of nickel-based alloys and cobalt-based alloys.--

--20. A method according to claim 1, wherein the step of drying is implemented over 0.5 to 4 hours.--

--21. A method according to claim 1, which includes, prior to the step of alitizing, heat treating the slip layer at a temperature range of 750°C to 1200°C in an atmosphere selected from argon and a vacuum.--

--22. A method according to claim 21, wherein the heat treating is implemented for a period of 1 to 6 hours.--

--23. A method according to claim 21, wherein the step of alitizing is implemented at a temperature range of 800°C through 1200°C for a duration of 1 to 12 hours.--

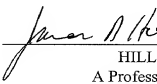
--24. A method according to claim 1, wherein the step of alitizing is at a temperature of 800°C through 1200°C for a duration of 1 to 12 hours.--

REMARKS

Claims 1-3, 8 and 10-24 are presented for examination.

By this amendment, the specification has been amended to insert headings and to correct grammatical and typographical errors. The claims have been amended to place them in form for examination in the United States Patent Office.

Respectfully submitted,



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DATED: February 3, 2000

METHOD FOR MANUFACTURING AN ADHESION LAYER FOR A HEAT INSULATION LAYER

The invention is directed to a method for manufacturing an adhesion layer for a heat insulation layer that is applied onto a component part.

Thermally or mechanically stressed component parts are provided with protective layers, for example anti-wear layers or heat insulation layers. An adhesion layer is generally provided between such an outer layer and the component part. Such adhesion layers must comprise a certain roughness and surface topography for clamping to the outer layer.

In gas turbine engineering, the adhesion layers given, for example, highly thermally stressed, metallic component parts such as turbine blades are provided between the component part and a heat insulation layer. Such heat insulation layers can be composed of a basis of zirconium oxide with additives of calcium oxide or magnesium oxide. In addition to the roughness for clamping to the outer protective layer or, respectively, the heat insulation layer, the adhesion layers must be oxide free and resistant to hot-gas corrosion. Since different thermal expansions generally occur in the heat insulation layer and the material of the metallic component part, these must also be at least partially compensated by the adhesion layer.

Diffusion layers that contain Al, Cr or Si are known as adhesion layers, these being manufactured by what is referred to as a powder packing method or out-of-pack method. The disadvantage of the diffusion layers manufactured with these methods are comprised in their brittleness and the limited layer thicknesses of up to approximately 100 µm.

Another known layer, what is referred to as a seating layer, on a MCrAlY basis is sprayed onto the component part with plasma spraying or is vapor-deposited onto the component part with evaporation of the layer constituents in an electron beam. Layer thicknesses up to approximately 300 µm are thereby achieved. Such methods are extremely complicated and expensive in terms of fabrication technology. Further disadvantages are comprised therein that the layers cannot be uniformly

applied onto geometrically complicated component parts, scatters in the layer composition occur, and the layer elements oxidize when being sprayed on or, respectively, when being vapor-deposited.

JP 55-82761 A discloses that component parts of, for example, a gas turbine, exposed to hot gases be protected in that Ni powder provided with a bonding agent is first applied onto the component part and is heat-treated, Cr is then introduced by chemical vapor-phase deposition or Al is introduced by a packing method, and, finally, Pt, Pd or Rh are deposited and heat-treated.

The object of the present invention is comprised in creating a method for manufacturing a layer of the species initially described that can be manufactured optimally simply in fabrication-oriented terms and cost-beneficially.

The attainment of this object is inventively characterized by the steps:

a) producing a slip by mixing powder containing at least one of the elements Cr, Ni or Ce with a binding agent;

b) applying the slip onto the component part;

c) drying the slip at temperatures from room temperature through 300°C; and

d) alitizing the slip layer, whereby the method is controlled such that the adhesion layer comprises a structure having a grain size less than 75 μm and a cavity proportion from 0 through 40%.

The advantage of the method is comprised therein that the powder mixed with a binding agent can be applied onto the component part in a simple way upon formation of a layer without requiring methods such as plasma spraying or electron beam evaporation that are expensive in terms of the outlay for systems. The layers manufactured with this method have a comparatively fine-grained structure with a grain size that is smaller than 75 μm. The layer comprises a cavity proportion from 0 through 40%. As a result, the layer has an improved thermal fatigue resistance as well as an advantageous expansion behavior that is error-tolerant with respect to cracks.

Moreover, additives of elements such as, for example, Y are uniformly distributed and not oxidized.

In a preferred development of the method, the slip is produced with a powder of MCrAlY or, respectively, a MCrAlY alloy, whereby M stands for at least one of the elements Ni, Co, Pt or Pd and Hf or Ce can also be employed instead of Y.

The powder is preferably present with a grain size distribution from 5 through 120 μm.

The application of the slip onto the component part preferably ensues by spraying, brushing or immersion, as a result whereof the method can be simply and cost-beneficially implemented in terms of fabrication technology. As a result of this type of application, locally limited layers can also be applied to geometrically complicated component parts in a simple way. Moreover, no expensive and complicated spraying and evaporation systems are required. Differing from thermal spraying or electron beam vapor-deposition, moreover, the problem of oxidation of the powder particles does not occur.

The drying of the slip, which is present in a suspension together with the organic or inorganic binding agent, is preferably implemented over 0.5 through 4 hours, whereby a duration of 1 through 2 hours has proven advantageous.

It is also preferred that the slip layer is heat-treated at temperatures from 750 through 1200°C in argon or a vacuum before the alitizing, whereby the heat treatment can be implemented over 1 through 6 hours in order to bond the slip layer to the component part by diffusion.

In a preferred development of the method, the final step of alitizing the slip layer is implemented at temperature between 800 and 1200°C and a duration of 1 through 12 hours. The alitizing serves the purpose of diffusion joining and compacting the layer and is implemented in a standard method such as, for example, in the powder pack method upon introduction of Al. The Al diffuses into the layer and into the basic material of the component part.

The layer is also preferably an adhesion layer onto which a heat insulation layer is applied as outer layer or, respectively, protective layer, this potentially ensuing in a standard way by plasma spraying or electron beam vapor-deposition.

The invention is explained in greater detail with reference to a drawing and an example. Shown are:

Figure 1 a polished section of the layer before the alitizing; and

Figure 2 a polished section through the layer after the alitizing.

In the manufacture of a layer, a MCrAlY powder is first mixed in a suspension with a standard inorganic binding agent for producing a slip. The grain sizes of the powder particles lie between 5 and 120 μm. A flowable, sprayable mass thereby forms. The viscosity of this mass can be influenced, for example, by the grain size of the powder particles employed. The M stands for nickel or cobalt or an alloy of these two elements. The proportion of aluminum and chromium is selected as high as possible in order to utilize their protective effect against oxidation, this being based thereon that chromium and aluminum form oxides serving as protective films at high temperatures.

Subsequently, the slip is applied with a brush onto a metallic component part such as a turbine guide blade composed of a nickel-based alloy upon formation of layer. The thickness and local spread of the layer can be influenced in a simple way in this type of application. Alternatively, the application could ensue, for example, with a spray gun as well.

In the next step, the slip present in a suspension is dried at room temperature over approximately 1.5 hours.,

The dried layer is then heat-treated in argon at 1000°C for 1 hour in order to achieve a union of the layer with the material of the turbine guide blade by diffusion. Following thereupon, the layer is alitized at approximately 1100°C for 4 hours with a standard method in order to strengthen the union with the metallic component part by diffusion and to compact the layer. Al thereby enters into the layer and into the base material of the metallic component part and sees both to a firm

connection of the layer with the component part as well as to a connection of the spherical MCrAlY particles with one another. Moreover, the MCrAlY particles at least partially sinter to one another.

Figure 1 shows a layer 2 applied onto a metallic component part 1 that has been heat-treated but not yet alitized. The spherical structure of the MCrAlY particles as well as the cavities located therebetween can be clearly seen in the layer 2.

Figure 2 shows the component part 1 and the layer 2 after the alitizing step. Noticeably fewer cavities are present in the layer 2. Moreover, the spherical MCrAlY particles are united with one another by the penetration of Al into the layer and into the base material of the component part 1. A sintering of the MCrAlY particles to one another also ensues in the alitizing step.

The layer produced in this way exhibits a clearly improved thermal fatigue resistance compared to (adhesion) layers produced in a traditional way. Moreover, no oxide formation of the layer ensues. Over and above this, the active elements such as Y are uniformly distributed and not oxidized.

The layer manufactured in this way can be utilized as adhesion layer onto which a heat insulation layer is applied as a final step by plasma spraying or with some other standard method. The layer can also be utilized without further ado as a high-grade hot-gas corrosion layer without having to apply an additional, outer protective layer. The properties of the corrosion-resistant and oxidation-resistant layer can be varied or, respectively, improved by lengthening the alitizing process.

Patent Claims

1. Method for manufacturing an adhesion layer for a heat insulation layer that is applied onto a component part, characterized by the steps:

   a) producing a slip by mixing powder containing at least one of the elements Cr, Ni or Ce with a binding agent;

   b) applying the slip onto the component part;

   c) drying the slip at temperatures from room temperature through 300°C; and

   d) alitizing the slip layer, whereby the method is controlled such that the adhesion layer comprises a structure having a grain size less than 75 µm and a cavity proportion from 0 through 40%.

2. Method according to claim 1, characterized in that the slip is produced with a powder of MCrAlY.

3. Method according to claim 1 or 2, characterized in that the powder is present with a grain size distribution from 5 through 120 µm.

4. Method according to one or more of the preceding claims, characterized in that the application ensues by spraying, brushing or immersion.

5. Method according to one or more of the preceding claims, characterized in that the component part is composed of an alloy on a nickel or cobalt basis.

6. Method according to one or more of the preceding claims, characterized in that the drying is implemented over 0.5 through 4 hours.

7. Method according to one or more of the preceding claims, characterized in that the slip layer is heat-treated at temperatures of 750 through 1200°C in argon or a vacuum before the alitizing.

8. Method according to claim 7, characterized in that the heat treatment is implemented over 1 through 6 hours.

9. Method according to one or more of the preceding claims, characterized in that the alitizing is implemented at temperatures between 800 through 1200°C and a duration of 1 through 12 hours.

Abstract

The invention is directed to a method for producing a corrosion-resistant and oxidization-resistant layer that is applied onto a component part, whereby the method can be simply and cost-beneficially implemented in fabrication-oriented terms and comprises the steps:

a) producing a slip by mixing powder containing at least one of the elements Cr, Ni or Ce with a binding agent;

b) applying the slip onto the component part;

c) drying the slip at temperatures from room temperature through 300°C; and

d) alitizing the slip layer.

Fig. 1

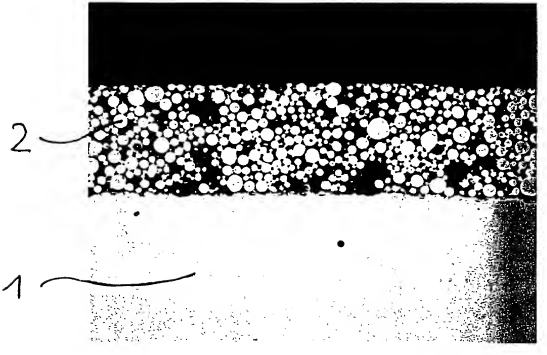
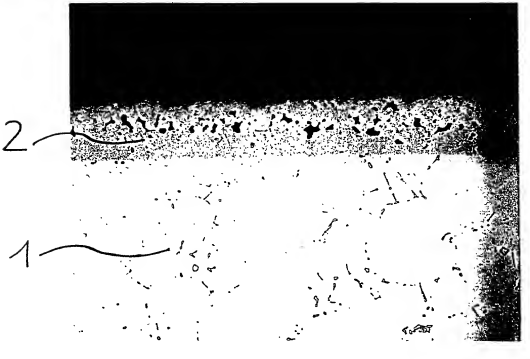


Fig. 2



DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION
ERKLÄRUNG FÜR PATENTANMELDUNGEN MIT VOLLMACHT
German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für des dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

Verfahren zum Herstellen einer Haftschicht fuer eine Waermeschicht

deren Beschreibung

(zutreffendes ankreuzen)

☐ hier beigefügt ist.

☒ am 31 May 1999 als
PCT internationale Anmeldung
PCT Anmeldungsnummer PCT/DE99/01598
eingereicht wurde und am _____
abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56 von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

_____

the specification of which

(check one)

☐ is attached hereto

☐ was filed on _____ as
PCT international application
PCT Application No. _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign applications
Priorität beansprucht

			Priority Claimed	
198 24 792	Germany	03 June 1998	☒	☐
(Number)	(Country)	(Day Month Year Filed)	Yes	No
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Ja	Nein
			☐	☐
(Number)	(Country)	(Day Month Year Filed)	Yes	No
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Ja	Nein
			☐	☐
(Number)	(Country)	(Day Month Year Filed)	Yes	No
(Nummer)	(Land)	(Tag Monat Jahr eingereicht)	Ja	Nein

Ich beanspruche hiermit germäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56 meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code. §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122 I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Serial No.) (Anmeldeseriennummer)	(Filing Date) (Anmeldedatum)	(Status) (patentiert, anhängig, aufgegeben)	(Status) (patented, pending, abandoned)
(Application Serial No.) (Anmeldeseriennummer)	(Filing Date) (Anmeldedatum)	(Status) (patentiert, anhängig, aufgegeben)	(Status) (patented, pending, abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Eklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint Messrs. John D. Simpson (Registration No. 19,842), Lewis T. Steadman (17,074), Dennis A. Gross (24,410), Robert M. Barrett, (30,142), Steven H. Noll (28,982), Kevin W. Guynn (29,927), Robert M. Ward (26,517), Brett A. Valiquet (27,841), Edward A. Lehman (22,312), David R. Metzger (32,919), James D. Hobart (24,149), Melvin A. Robinson (31,870), Joseph P. Reagen (35,332), Michael R. Hull (35,902), Michael S. Leonard (37,557) and Marvin Moody (16,549), all members of the firm of Hill & Simpson, A Professional Corporation

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